

CHAPTER 3

LAND USE AND COMMUNITY DESIGN

BACKGROUND

An underlying premise of the County's general land use strategy is to balance employment, transportation, and housing opportunities to provide the greatest environmental and economic efficiency. The Toll Road planning area provides a unique transportation and economic development opportunity to the County's land use strategy by offering such resources as the Dulles Greenway; nine planned interchanges with major north-south connector roads; the promise of transit facilities, including park-and-ride lots, bus service, and rail in the median of the Toll Road, and Dulles and Leesburg Airports. In order to take best economic advantage of these unique resources a concentrated, compact land use pattern has been devised to ensure economic growth in the planning area and support the viability of transit service.

The land use strategy for the Toll Road planning area is designed to promote compact development at interchange locations and transit facilities. This approach will optimize the opportunities offered by these locations on the Dulles Greenway. The highest intensity development in the planning area will occur at nodes, planned areas of the corridor served by transit (bus and, eventually, rail) and at the interchanges, where the north-south connector roads join the Dulles Greenway. These two different types of locations, associated land uses and transportation resources separate automobile-oriented land uses from transit-oriented land uses by providing the balanced land development scheme envisioned for the planning area. The development of nodes and interchange areas will promote the efficient use of land in terms of development pattern and service provision, the efficient, uncongested functioning of the Dulles Greenway and feeder road network, and the viability of transit for Loudoun County. The clustering of the highest densities in the planning area adjacent to the Toll Road should maximize its function as a transportation facility and ensure its economic development.

The location and definition of land use designations for the Toll Road planning area are based on the General Plan. The Plan calls for the development of the Business, Industrial, and Residential Communities explained in the General Plan. Given the important resources associated with the planning area, new concepts in land use have been determined, including Nodes, High Density Residential, and Business Employment. The planning area's relationship to Dulles Airport prompted modification of nearby land use designations. To promote the expansion of the Airport and capture the expected growth of ancillary businesses, the County designates the eastern end of the planning area as a Business Employment Community. In recognition that the intensity of uses anticipated for the Toll Road planning area will evolve over time, the County allows for the location of large scale, "special" uses which may have an impact on surrounding uses and for interim land uses.

Community design in the Toll Road planning area builds on the design principles and policies outlined in the General Plan, with additional guidance for design adjacent to the Dulles Greenway. The physical pattern of development will establish a sense of community by addressing convenience, comfort, service, stability, amenity, identity and character. The design of nodes will have a significant impact on the appearance of development along the road as well as the attractiveness of the corridor for economic development. The opportunity in the Toll Road corridor for concentrated development due to bus and rail service will generate physical form and community types that are unprecedented in Loudoun County. High density, pedestrian-oriented urban environments will be designed as pleasing environments to ensure their success. Property owners that have approved but unbuilt projects have the opportunity to maximize the availability of transit services through redesign of approved projects.

NODES

The purpose of nodal development is to concentrate land use intensities to limit sprawl and reduce public costs; to provide the "critical mass" needed to support bus and rail transit; to provide a development alternative which promotes the separation of automobile-oriented land uses from transit-oriented land uses; and to maintain the efficient operation of the Dulles Greenway. Nodes will be transit-oriented and may serve several different functions. A Node may develop as an employment center, consisting of offices and support services, or as a special destination, consisting of a convention center and hotels, or as an end-of-the-line transit center, consisting of a Regional park-and-ride lot. Nodes may also consist of a mix of high intensity land uses including residential, offices, large-scale institutions, entertainment and cultural centers, daycare and other business and residential support services. Nodes will provide for the mix of uses sufficient for people to live and work within the node and provide enough land use intensity to accommodate transit and create destination employment centers. The County envisions that nodes will be mixed use in character in all locations except for those located within Business Employment areas. These nodes will not have a residential component.

Nodes will be sufficiently separated along the Dulles Greenway to allow the development of low density land uses and the protection of sensitive environmental features between them. This will ensure that the node remains distinct and that the Toll Road is not overly congested. Nodes will be located between Toll Road interchanges so that conflicts with "through" traffic are eliminated, interchanges are not overburdened, and so that the nodes will eventually be served by rail transit operating from the Toll Road's median. The location of nodes will be determined when a proposed node meets a set of locational criteria. Depending on the planned location of the transit stop, nodes can be located on the north side or the south side of the Toll Road or could straddle the road. If a transit stop is located outside of the median of the Dulles Greenway, the node should be located completely on the same side of the roadway. If the transit stop is located within the median of the roadway, the node may be located on both sides of the roadway. A joint public-private partnership is encouraged in the planning of individual nodes and all property-owners are encouraged to work together in fashioning a unified development plan for nodal areas.

Nodes will be composed of a core and an outer-core. Transit stops will be located at the center of the core. The node will encompass an area no greater than a seven minute walk from node edge to transit stop to ensure compact development, with reliance on transit and pedestrian circulation.¹ The highest land use intensities will be located close to the transit stop at the core of the node. Land uses diminish in intensity as they increase in distance from the transit stop. The node will be surrounded by a secondary area, providing for an additional density transition from the intense nodal development pattern to the less intense development outside the node.

The development intensity of a node will be phased when road and transit capacity can support it. The County will consider density increases when there is adequate transportation capability to handle the associated traffic increases. The County will continue to negotiate the phasing of the development intensity of nodes based on the phased improvement to the transit network planned to serve the node--roads, bus, and rail. Each density phase can be achieved when the next level of transportation capacity is planned, programmed, designed, and fully funded for construction either by public subsidy, a joint public/private venture, a consortium of property-owners, or the private sector, in order to ensure adequate transportation capacity.

POLICIES

1. High density development will occur in concentrated, mixed use nodes located along and fronting the Dulles Greenway.
2. The locations for nodes will be determined when a proposal for the development of a node complies with the policies of this Plan and meets these seven criteria.
 - a. The location provides road access with adequate capacity and a network which supports bus transit to the transit stop located at the center of the node ensuring timely, efficient transit service.
 - b. The location is between interchanges, so that the intensity of the nodal development is supported by two interchanges, and so that auto-oriented land uses are conveniently separated from transit-oriented land uses. When rail serves the node, the rail can either leave the median of the Toll Road or remain in the median and not be hampered by the configuration of the road network. Toll Road interchanges should not be congested by the high density land use planned for the node.
 - c. There is sufficient land area to support the development needed to sustain bus and rail transit and the size meets the node size policies included in the Plan.

¹ The seven minute walk is an accepted transportation planning measurement of the time and distance that the average transit user will walk to the transit service.

- d. The location has minimal environmental constraints, such as major floodplain, steep slopes, and reservoirs.
 - e. The location will not negatively affect established neighborhoods by promoting through traffic and other such intrusions to the neighborhood.
 - f. The location can clearly provide a transit opportunity which can be engineered to serve the node, including accommodating rail in the median of the Toll Road.
 - g. Because of the planned land use intensity, the location harms neither the planned regional road network nor planned regional transit facilities.
3. The first two nodes will be located to the west of the Route 606 interchange and between the Route 607 and Route 772 interchanges or where the rail station is located as shown on the Potential Node Location Map. Nodes located in the Business Employment area are anticipated to develop with a mix of non-residential uses. Proposals for the development of nodes in addition to these two, will be considered upon evaluation of the fiscal impact of the proposed node as well as conformance with the nodal development policies included in the Toll Road Plan.
 4. The area located between the Route 606 and the Route 607 Toll Road interchanges could be considered for a potential node site.
 5. Nodes may not be located between Goose Creek and Sycolin Creek until a Dulles Greenway interchange with Route 643 is designed and scheduled for construction.
 6. The area which could accommodate nodes is depicted on the map on page XX.
 7. Nodes will be located between the Dulles Greenway interchanges. Node edges will be located no closer than 1500' from the center point of an interchange.
 8. Nodes will be located completely either on the north or south side of the Dulles Greenway.
 9. The land use mix (measured as a percentage of the gross land area) in the nodes will generally comply with the following ratios:

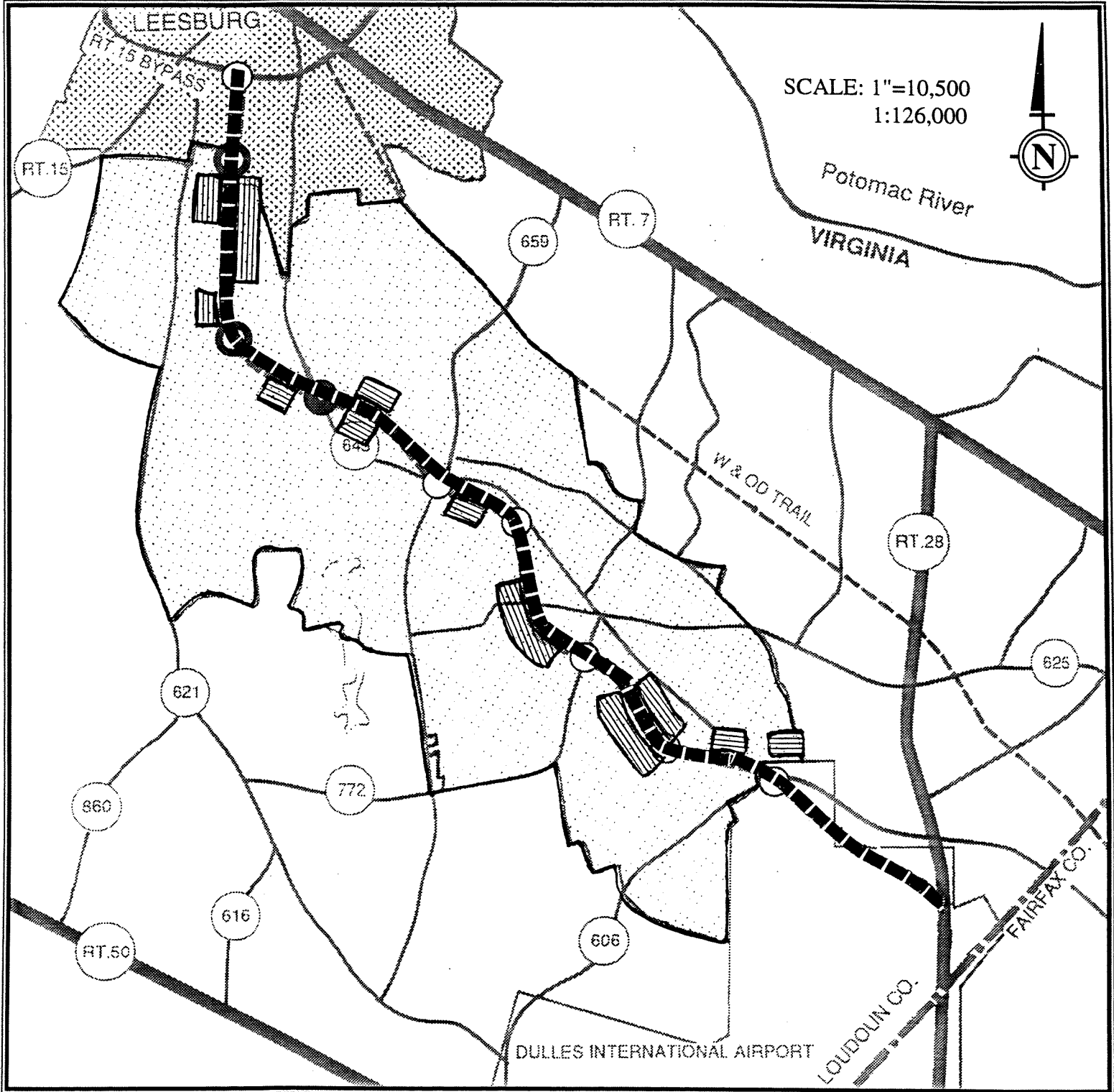
	Min. Req.	Max. Allowed
a. Traditional or Urban neighborhoods	0%	50%
b. Regional office	0%	50%
c. Light industrial	0%	40%
d. Regional office/light industrial combined	20%	50%
e. Commercial retail and services	10%	30%
f. Public parks, civic and open space	15%	no max.

10. Nodes can be located opposite each other on either side of the Toll Road. In this situation, the transit facility may be located in the median of the Toll Road, serving both nodes.
11. Nodes should contain a mix of uses which includes three or more significant tax producing land uses that are mutually supporting.
12. The County will encourage the development of a mix of housing types, densities, and building types in nodes.
13. To allow design flexibility, modification of current buffering, screening and setback policy and regulations may be permitted when justification can be made that these modifications further the land use and community design goals outlined in this Plan.
14. Nodal land uses should be located within 1000' of each other to ensure a compact development pattern.
15. Automobile-oriented land uses such as building supply, nursery operations, auto dealers, large scale, single-story retail uses, truck terminals, warehousing, golf courses, service stations, furniture stores, drive-in restaurants and banks will not be located in nodes, but where designated in the General Plan.
16. The County will encourage the formation of public-private partnerships to ensure the integration of the mix of uses to be developed in nodes especially when multiple land owners are involved.
17. Nodes will be 40 to 160 acres in size.
18. To encourage revitalization, transit access, and compact development along the Toll Road, a small node, less than 40 acres, can be developed under certain circumstances: if the proposed node is located where there is existing or planned development which is complementary in use, design, and pedestrian connection to adjacent existing and planned uses. The County anticipates that the small node will be proposed to be developed on infill and redevelopment sites, where infrastructure and compatible existing development is in place.
19. The boundaries of a node will vary to correspond with physical and natural barriers that limit pedestrian connections and movement. Limiting factors may include topography, major arterials, floodplain.
20. Nodes will consist of a core and an outer-core.
21. Transit stops will be located in the center of the core.
22. Node core sizes will range from 25% to 50% of the node.
23. The core will contain the highest land use intensities in the Toll Road planning area. The core may contain a mix of land uses including employment and commercial retail

uses, restaurants and personal services, and residential uses. Use intensities will step-down from the core to the outer-core to the secondary area.

24. Nodal land use intensity shall be phased as alternative modes of transit are available. Use intensities may increase as the specified mode of transit is planned, scheduled, designed, and funded to serve the node. The density for nodal development when served only by roads is up to 16 net dwelling units per acre for residential development and up to .6 FAR for non-residential development contingent upon the availability of utilities, pedestrian and bicycle travelways, public facilities, conformance to the community design and growth management policies of the General Plan and the Toll Road Plan. When bus service and facilities are planned, scheduled, designed, and fully funded to serve the node, residential densities may increase above 16 net dwelling units per acre up to 32 net dwelling units per acre and a non-residential FAR above .6 up to 1.0 contingent upon the availability of utilities, pedestrian and bicycle travelways, public facilities, conformance to the community design and growth management policies of the General Plan and the Toll Road Plan. When rail transit and facilities are planned, scheduled, designed, and fully funded to serve the node, residential densities can increase above 32 dwelling units per net acre up to 50 net dwelling units per acre and a non-residential FAR above 1.0 to 2.0.
25. Core land uses should include convenience retail uses and civic uses, such as public plazas, libraries, day care and postal services.
26. Mixed uses are encouraged in multi-story buildings in the core.
27. The outer-core will consist of the land located between the core's edge and the node's edge.
28. Major access roads will be located on or near the periphery of the node to avoid conflict with transit services and pedestrian traffic. (Reference Policy 1 on page 4-4.)
29. Proposals for the development of a node should include a unified, coherent concept plan showing the type and scale of uses, densities and the physical and functional integration of proposed land uses, including the pedestrian connections between uses and transit stops.
30. The County will encourage the cooperation of all land owners in the development of nodes to ensure conformance with the nodal development concept set forth in the Toll Road Plan.
31. The secondary area will consist of the land located between the node edge and approximately 1/2 mile from the transit stop.
32. The secondary area is meant to provide a transition area between the high density node and the lower density development pattern outside of the nodes. Land uses located in the secondary area will include lower density residential uses and auto-oriented commercial and industrial uses inappropriate for a transit-oriented node.

Toll Road Plan



Potential Node Locations



Note: The area between Rt. 606 and Rt. 607 has been designated as a potential node site based on the potential for a transit facility located on airport property.

33. Secondary areas should provide land uses which complement and support nodal land uses.
34. Large recreation facilities, park and ride lots and schools are appropriate for secondary areas.
35. The secondary area street network should complement and support the core area street network by providing multiple and direct vehicular and pedestrian connections to the node and to the transit center.
36. Secondary areas will be permitted to develop to a maximum density of six (6) dwelling units per net acre depending on the availability of bus service to the node, roads, utilities, and a full complement of public services and facilities.
37. Secondary areas will be permitted to develop to a maximum density of nine (9) dwelling units per net acre depending on the availability of rail service to the node, roads, utilities, and a full complement of public services and facilities.
38. In nodes and other areas planned for mixed-use development, the County anticipates that the residential component will be phased to be developed in conjunction with the non-residential component so that a mix of residential and non-residential uses is provided as the project is built-out.

INTERCHANGES

The land uses located at the interchanges of the Dulles Greenway are meant to serve the automobile-oriented land uses that require good road access. The interchanges offer locations providing good visibility from the Toll Road and office development, large shopping centers, and townhouses and apartments are planned to develop there. Higher intensity land uses, through clustering buildings, noise attenuation in construction, and other design techniques, can overcome the negative effects of locating next to a high speed roadway. The nine planned interchanges of the Dulles Greenway offer the opportunity for the development of a variety of land uses at use intensities provided for by the General Plan and the Toll Road Plan, including Industrial, Business, Business Employment, High Density Residential, and Residential.

POLICIES

1. Land use at interchanges shall be in accordance with the land use map on page XX.
2. The future interchange of Route 643 with the Dulles Greenway is planned to include High Density Residential in its two southern quadrants at the time that the interchange is designed and scheduled for construction. Until then, the land use designation for the interchange area is Residential Community.

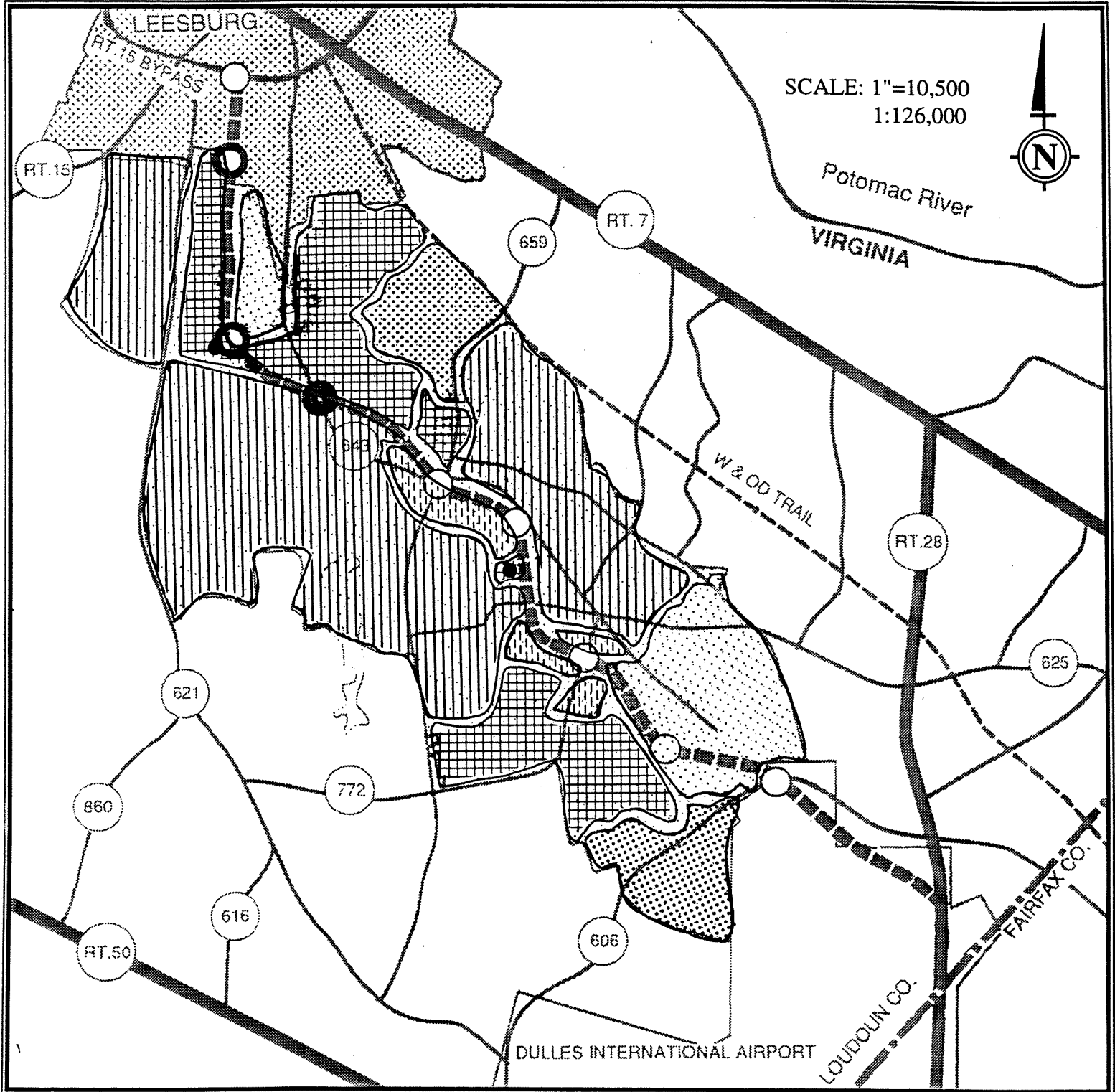
GENERAL LAND USE

The County promotes the development of sustainable mixed-use communities in the Toll Road planning area, as envisioned by the General Plan. However, two new land use designations that are not mixed use communities, Business Employment Communities and High Density Residential Communities, are also planned for the corridor. The three distinct community types defined by the General Plan and applicable in the planning area include Residential, Business and Industrial Communities. More specifically, Suburban Communities, allowing densities up to three dwelling units per net acre; Traditional Communities, allowing densities up to four dwelling units per acre are permitted in the planning area. Although Traditional Communities are the preferred development pattern in the Toll Road planning area, Suburban Communities may be located within the area where they are compatible infill development or adjacent to existing Suburban Communities. Nonresidential development, such as Regional Office, Regional Commercial, Light Industrial Business Communities; and General Industry, Extractive Industry, and Heavy Industry Industrial Communities, as defined by the General Plan, can also be developed at certain locations in the Toll Road planning area. In addition, special uses such as large scale sports, tourist, institutional or employment facilities, may be located within the planning area as envisioned by the General Plan.

Two new community types are afforded as well, given the specific land development goals identified for the planning area. The new community types include High Density Residential and Business Employment. High Density Residential Communities allow densities up to 24 dwelling units per net acre and can include a Residential Neighborhood Center (as defined by the General Plan). High Density Residential Communities will involve the development of townhouses and apartment units and will be located at interchanges of the Toll Road where road access is sufficient to handle the traffic impacts.

Business Employment Communities will develop much like Business Communities, but without a residential component. Property in Business Employment Communities may be developed as either Regional Office Communities or as Light Industrial Communities. The eastern end of the Toll Road planning area is designated for Business Employment uses to provide ample land for expected airport-related development, to limit residential encroachment on the Airport and adjacent industrial uses, and to provide opportunities for combinations of regional office, light and flex-industrial uses near the Airport. The County recognizes the importance of Dulles Airport for future economic development. Approximately 55% of the nonresidential development anticipated in the County will result from industrial or flex-industrial uses, most of which will be Airport-related. Demand for this type of development is expected to be strongest in the eastern end of the planning area, hence the reason for the special designation of Business Employment in that area.

Toll Road Plan



Proposed Land Use

	Residential		High Density Residential
	Business		Community Shopping Center
	Industrial		Business Employment

POLICIES

1. The County will encourage the development of mixed land uses as described in the General Plan for the entire Toll Road planning area. The land use pattern will generally conform with the land use map on page XX.
2. The County will promote the development of Business Employment uses, including office and light industry, close to the Dulles Airport which include a mix of compatible and mutually supporting uses. Business Employment Communities are designated on the land use map on page XX.
3. The land use mix (measured as a percentage of the gross land area) in the regional office areas of Business Employment Communities will generally comply with the following ratios:

	Min. Req.	Max. Allowed
a. Traditional or Urban neighborhoods	0%	0%
b. Regional office	50%	70%
c. Commercial retail and services	10%	20%
d. Light industrial	0%	40%
e. Public and civic	5%	no max.
f. Public parks and open space	5%	no max.

4. The land use mix (measured as a percentage of the gross land area) in light industrial areas of Business Employment Communities will generally comply with the following ratios:

	Min. Req.	Max. Allowed
a. Traditional or Urban Neighborhoods	0%	0%
b. Commercial retail and services	0%	10%
c. Regional office	15%	40%
d. Light industrial	50%	75%
e. Public and civic	5%	no max.
f. Park and open space	5%	no max.

5. To provide incentives to attract airport-related uses, the County will establish Airport Economic Enterprise Overlay Zones. The purpose of the zones is to promote the development of uses which support, are compatible with, and enhance airport operations.
6. The County will apply the goals and objectives of the County's Economic Development and Growth Strategy to the Toll Road planning area.
7. The County will promote the development of High Density Residential uses with densities up to 24 dwelling units per net acre at specified interchanges of the Dulles Greenway. High Density Residential Communities are designated on the land use map on page XX.

8. The land use mix (measured as a percentage of the gross land area) of High Density Residential Communities will generally comply with the following ratios:

	Min. Req.	Max. Allowed
a. Traditional Neighborhood	0%	30%
b. High Density Residential	50%	88%
c. Public and Civic	2%	no maximum
d. Public Parks and Open Space	10%	no maximum

9. High Density Residential Communities may include a Residential Neighborhood Center as defined by the General Plan.
10. The County anticipates that high density residential and non-residential development will evolve from low or moderate density development along the Dulles Greenway when transit facilities are available to accommodate a more dense and compact development pattern.
11. The County will facilitate the phasing of development linked to the capacity of the road system and to the availability of transit. Overall, residential density and floor area ratio (FAR) caps should be determined which are tied to adequate roads and transit.
12. Residential developments can include local commercial, employment, open space, civic uses, and recreational facilities. The following five criteria should be used to evaluate the different uses.
- a. Employment uses may include office and light industrial uses provided:
 - i. Activities such as storage, assembly, and display are completely enclosed and there is no noise, vibration, odor, or other undesirable emissions;
 - ii. Industrial traffic does not pass through residential neighborhoods;
 - iii. Proposed designs feature a pedestrian-oriented scale, and convenient access for local residents;
 - iv. Associated activities such as parking, signs, lighting, waste storage, and loading activities are located and designed to minimize any negative impact on adjacent uses; and
 - v. Activity and operational schedules are compatible with the residential community.
 - b. Open space, including natural areas, tot lots, athletic fields, parks and greens should generally be dispersed so they are conveniently located to most people in the neighborhood. In addition, the following two locational criteria apply.

- i. Athletic fields should be located along collector roads and should be buffered from adjoining residents, although trails or sidewalks should provide a connection with the neighborhood.
 - ii. Greens and other maintained, passive parks should serve both a recreational and design function by being located in high visibility areas or in conjunction with civic uses such as schools, churches or community buildings and Neighborhood Commercial Centers where the green can serve as either a "mall" for the center or as a buffer for adjoining homes.
- c. Civic uses that are appropriate within residential communities include houses of worship, community centers, elementary schools, government human services offices and facilities such as a senior cafe, daycare facilities, branch libraries, and similar uses. In addition, the following four locational criteria apply.
 - i. Civic uses should be located at prominent locations within the neighborhood such as the end of a street, ridgeline, or street intersection.
 - ii. Where possible, such uses should be located in conjunction with a Neighborhood Commercial Center.
 - iii. Parking, signs, lighting, and loading areas should be located and designed to have minimal undesirable impact on surrounding areas.
 - iv. The scale of civic uses should be compatible with the residential and pedestrian nature of the surrounding neighborhood. Large scale civic or institutional uses requiring more than fifteen buildable acres, either individually or in a multipurpose facility, should be located on the periphery of an individual neighborhood or in employment areas on roads that can accommodate the anticipated traffic volume.
- d. Residential neighborhoods exceeding one hundred acres in gross area may include a Neighborhood Commercial Center. The total area dedicated to the Commercial Center(s) shall not exceed 3% of the area of the proposed development. The following four location and design criteria apply.
 - i. A Neighborhood Commercial Center is intended to be a compact grouping of commercial business, civic and residential uses providing convenience goods and services to residents in adjoining neighborhoods. It is also intended to create a sense of place and identity for the community.
 - ii. Neighborhood Commercial Centers should be located on a collector road serving adjoining Residential Neighborhoods, generally in the geographical core of an individual neighborhood or between adjoining

neighborhoods, but shall not directly access an arterial road. Where a development proposes more than one Commercial Center, they should be clearly separated by distance or major barrier that will prevent the centers from developing into a strip development.

- iii. Approval of a request to rezone property to establish a Neighborhood Commercial Center shall be contingent on the adequacy of roads and utilities, compatibility with adjoining residential development, and enhancement of a pedestrian-oriented environment.
 - iv. Individual Neighborhood Commercial Centers shall be limited to a single property or contiguous properties comprising approximately five acres.
- e. A Town Center is a mixed use commercial development built on 30 to 60 acres of land in conjunction with larger residential developments of at least 300 acres and contingent on five criteria.
- i. A Town center is intended to be a compact, pedestrian-oriented, mixed-use center that can serve as a focal point for a large residential area. A Town Center should clearly relate to adjoining neighborhoods by means of pedestrian and vehicular access, provision of recreational, cultural and social services and the compatible design of structures and landscaping.
 - ii. A Town Center must be at least 10,000 feet away from another Town Center and at least 4,000 feet away from a Neighborhood Commercial Center. The distance shall be measured between the two closest points. This separation may be reduced where a permanent natural or manmade barrier provides clear visual separation and eliminates the possibility of different centers merging into a commercial strip.
 - iii. A Town Center should be situated in one quadrant of the intersection of two arterial or major collector roads or on one side of a single arterial or major collector. The majority of the served residential community should not be separated from the Town Center by an arterial road or major collector.
 - iv. Approval of a request to rezone property to permit a Town Center shall be contingent on the provision of appropriate civic uses and services, the impact on existing neighborhoods and compliance of the proposal with the community design goals and policies of the County.
 - v. Individual commercial uses within a Town Center should not have a single-level floor area significantly larger than 20,000 square feet, with the exception of grocery stores.

13. Light Industrial and office uses are encouraged in compact parks and clusters adjacent to the Dulles Greenway, and in other non-nodal areas designated Business Community on the Land Use Map.
14. Industrial and office uses will be limited to those which do not require substantial outside storage and which have negligible harmful emissions (i.e., noise, odor, vibration).
15. Light Industrial and Regional Office developments should include employment, open space, civic uses, residential, local commercial and recreational facilities. Four criteria should be used to evaluate the different uses.
 - a. Residential development may be permitted in Light Industrial and Regional office developments as indicated on the land use map.
 - i. Residential developments may have a maximum density of 24 units per acre contingent on the availability of adequate roads, utilities, and public services and amenities, as well as compatibility with surrounding uses.
 - ii. Residential uses should be protected from the impacts of truck traffic generated by industrial and office development. Development proposals for new light industries shall include a plan to minimize the impact of industrial truck traffic on residential communities through appropriate routing and operational restrictions.
 - iii. The principal access to residential uses should not require residents to travel through employment areas except along collector streets.
 - iv. The residential component of the Light Industrial and Regional Office development should not be the prominent visual feature when viewed from adjacent major collector or arterial roads or from the Dulles Greenway.
 - v. Buffering of residential uses from employment uses in the same Light Industrial or Regional Office development shall be accomplished through transitional uses such as civic, recreational, open space, or neighborhood commercial centers. However, clear connections between different uses shall be maintained through pedestrian links, complementary design and other means.
 - b. Open space uses such as natural areas, athletic fields and maintained parks and greens should generally be dispersed so they are conveniently located to most people in the neighborhood. In addition, three locational criteria apply.
 - i. Athletic fields should be located along collector roads and should be buffered from adjoining uses to mitigate the effects of lighting, noise, traffic and other associated activities.

- ii. Greens and other maintained, passive parks should serve both a recreational and design function by being located in high visibility areas, or in conjunction with civic uses or Neighborhood Commercial Centers where the green can serve as either a "mall" for the center or as a buffer for adjoining uses.
 - iii. Natural areas should serve as buffers between different uses or communities.
- c. Civic uses that are appropriate may include houses of worship, community centers, middle and high schools, government offices and facilities. In addition, four locational criteria apply.
 - i. Smaller scale civic uses serving a local function should be prominently located, close to or within the residential component of an industrial or office development.
 - ii. Where possible, smaller civic uses should be located in conjunction with a Neighborhood Commercial Center;
 - iii. Larger scale civic uses requiring more than fifteen acres of land, or those which serve a regional function should be located within the industrial or office areas where traffic, noise and safety conflicts can be minimized.
 - iv. Parking and associated activities such as signs, loading, and lighting should be located and designed to have minimal negative impact on surrounding areas.
- d. Light Industrial and Regional Office developments may include a Commercial component. Four locational and design criteria apply.
 - i. Commercial development is a compact grouping of commercial business uses, intended to create a sense of place and identity for the community.
 - ii. Commercial uses should be located on a collector road serving adjoining development, generally on the periphery of an individual industrial or office park or between adjoining parks.
 - iii. Smaller scale commercial uses similar to those proposed in a Neighborhood Commercial Center may serve as a transitional use between the residential community and the office or industrial areas of the development.
 - iv. Approval of a request to rezone property to establish a commercial use shall be contingent on the adequacy of roads and utilities and compatibility with adjoining development.

16. Regional Commercial uses are defined as large scale retail uses, other than grocery stores, with primary markets outside the Toll Road planning area and that require individual building footprints in excess of 50,000 square feet of gross leasable floor area, and shopping centers in excess of 150,000 square feet.
17. The County may approve the construction of a Regional Commercial development subject to five criteria.
 - a. The proposed use has direct access to an arterial or major collector road without routing traffic through a residential community.
 - b. The proposed use respects the ultimate arterial or major collector road alignment proposed in this Plan.
 - c. Utilities are available to accommodate the use.
 - d. Detrimental impacts on adjoining communities are minimized.
 - e. The use does not interfere with the function of adjoining light industries or offices.
18. Regional Commercial developments should include employment, open space, and civic uses. The following criteria should be used to evaluate the appropriateness of the different uses:
 - a. Open space uses such as natural areas, athletic fields and maintained parks and greens should generally be dispersed so they are conveniently located to most people in the neighborhood. In addition, three locational criteria apply.
 - i. Athletic fields should be located along collector roads and should be buffered from adjoining uses to mitigate the negative effects of lighting, noise, traffic and other associated activities.
 - ii. Greens and other maintained, passive parks should serve both a recreational and design function by being located in high visibility areas or in conjunction with civic uses.
 - iii. Natural areas should serve as buffers between different uses or communities.
 - b. Civic uses that are appropriate may include houses of worship, community centers, middle and high schools, government offices and facilities. In addition, three locational criteria apply.
 - i. Smaller scale civic uses serving a local function should be located at prominent places close to adjacent residential development to serve as a transition or buffer.

- ii. Larger scale civic uses, requiring more than fifteen acres of land or those which serve a regional function should be located within the commercial area of the development, but along its periphery where traffic, noise and safety conflicts can be minimized.
 - iii. Parking and associated activities such as signs, loading, and lighting should be located and designed to have minimal impact on surrounding areas.
- c. Light industrial and office uses may be included in a Regional Commercial development. Three locational and design criteria apply.
 - i. Industrial traffic should be separated from commercial customer traffic.
 - ii. Smaller scale office uses may serve as a transitional use between the Regional Commercial community and adjacent uses.
 - iii. Signs, parking, outdoor storage, loading and similar activities and features should be located away from adjacent residential uses surrounding the development.
- 19. Commercial shopping centers of less than 150,000 square feet of gross leasable floor area (gla) should locate in a Neighborhood Commercial Center or Town Center.
- 20. Commercial shopping centers of greater than 150,000 square feet of gross leasable area should locate only in areas designated Business Community on the Land Use Map.
- 21. Food stores and supermarkets should locate only in Neighborhood Commercial Centers or Town Centers.
- 22. Land bordering Route 606 and the area around the Luck Stone Quarry on Goose Creek will be designated for industrial uses.
- 23. Industrial Communities may include employment, open space, civic, commercial and recreational facilities. Three criteria should be used to evaluate dissimilar uses.
 - a. Open space, such as natural areas, athletic fields and maintained parks and greens should generally be dispersed for convenient user access. In addition, three locational criteria apply.
 - i. Athletic fields should be located along collector roads and should be buffered from adjoining uses to mitigate the effects of lighting, noise, traffic and other associated activities and to prevent unplanned pedestrian traffic to nearby uses.
 - ii. Greens and other maintained, passive parks should serve both a recreational and design function by being located in high visibility areas or in conjunction with civic uses.

- iii. Natural areas should serve as buffers between different uses or communities.
 - b. Civic uses that are appropriate may include large scale government offices and facilities of an industrial nature. In addition, three locational criteria apply.
 - i. Civic uses should be located where traffic, noise and safety conflicts can be minimized.
 - ii. Parking and associated activities such as signs, loading, and lighting should be located and designed to have minimal impact on surrounding areas.
 - iii. Pedestrian activities associated with civic uses should be clearly separated from nearby industrial uses.
 - c. Industrial Communities may include a commercial component. The total area dedicated to commercial uses shall not exceed 30% of the area of the proposed development. Four locational and design criteria apply.
 - i. Commercial development should be a compact grouping of commercial business uses primarily intended to serve industries in the vicinity.
 - ii. Commercial uses should be located on a collector road serving adjoining development, generally on the periphery of an industrial or office park, or between adjoining parks.
 - iii. Smaller scale commercial uses similar to those proposed in a Neighborhood Commercial Center may serve as a transitional use between industrial and surrounding uses.
 - iv. Approval of a request to rezone property to establish a commercial use shall be contingent on the adequacy of roads and utilities and compatibility with adjoining development.
24. Heavy industrial uses are generally defined as manufacturing, resource extraction, refining and similar industries which by virtue of scale, associated emissions or activities, are not compatible with other types of development.
 25. Heavy industry uses may locate in areas designated Industrial Community on the Land Use Map.
 26. Residential communities should be protected from the negative impacts of traffic generated by heavy industries. Development proposals for new heavy industries shall include a plan to minimize and mitigate the negative impact of industrial traffic on residential communities through appropriate routing and operational restrictions.
 27. In evaluating heavy industrial proposals, the Board of Supervisors shall determine that the following three criteria have been met:

- a. Adequate public utilities and roads are provided;
- b. The use has mitigated the negative impacts on the surrounding land uses and the natural and cultural environment; and
- c. The use complies with the goals and policies of the County's Comprehensive Plan.

CORRIDOR DESIGN

The County's vision for the Toll Road corridor is to promote a high quality built and natural environment, for a pleasing experience on the Dulles Greenway. Landscaped buffers and trees will abut the roadway to provide an attractive natural buffer between the road and the buildings constructed in the corridor. The preservation of a limited amount of open space along the corridor will provide a functional and aesthetic enhancement for the roadway.

Although several options for corridor design exist, the Dulles Greenway corridor, which includes the land visible from the roadway itself, is envisioned with landscaped setbacks from the road right-of-way. The preservation of existing vegetation, supplemented by additional indigenous vegetation is the preferred method of creating a parkway sense distinctive to Loudoun County. A building setback in the corridor will provide for parks or recreational amenities to be located adjacent to the roadway. In nodal areas, reduced setbacks will provide an urban sense of place in areas of concentrated development. The reduction in required setbacks that applies to nodal areas will not apply to areas adjacent to interchanges. Although these areas may contain higher densities, these uses should not crowd the interchanges.

POLICIES

1. The minimum building and parking setback for new development adjacent to the Toll Road right-of-way including the fillets or connectors between rights-of-way lines at planned or existing intersections and all interchanges will be 150 feet.
2. Within all setbacks, minimal disturbance of existing natural resources is encouraged to provide an attractive natural buffer between the road and adjacent development. Additional vegetation may be added to enhance existing vegetation patterns, providing that the new vegetation is indigenous to Loudoun County. Disturbance of existing natural resources and/or planting additional vegetation will not be allowed along the corridor adjacent to the diabase glade.
3. Building and parking setbacks greater than 150 feet are strongly encouraged.
4. Applicants are permitted to locate pedestrian, bicycle and exercise trails within and adjacent to the setback.
5. Open space along the corridor is encouraged, particularly adjacent to sensitive environmental features. The purchase of open space easements in these areas is the encouraged method of ensuring that open space occurs in the corridor.

6. The County's vision for the Toll Road corridor is to promote a high quality built and natural environment.
7. To reinforce the urban character in nodal areas, the building setback adjacent to the Toll Road may be reduced to the minimum required in the underlying zoning district. Flexibility should be provided for zoning district setbacks in nodal areas.

OPEN SPACE

The County has placed a high priority on the preservation of open space. The General Plan addresses open space with several policies, backed with proffer guidelines, which apply in the Toll Road planning area. The Toll Road planning area will contain some of the most concentrated development in the County and will balance this with open space resources that maintain the high quality of life for residents and employees in the planning area. Priority areas for open space in the planning area include those adjacent to Goose Creek, Broad Run and Sycolin Creek, the rural areas at the western and southwestern edge of the planning area, the part of the Phase III area located in the Toll Road planning area, environmentally-sensitive areas like the diabase glade. Density transfers are encouraged from those areas identified in the General Plan as well as any area outside a UGA zoned for rural residential use (CR-1, CR-2, etc.) and from those parts of the Dulles South planning area not served by utility extensions. Preservation of open space can be accomplished through on-site density transfers from land adjacent to a floodplain or environmentally, historically, or visually significant land areas. Off-site density transfers through the purchase of open space easements for land that is environmentally, historically or visually significant will be accomplished within the planning area as well.

POLICIES

1. The County encourages that open space be an integral part of new residential and non-residential communities in the Toll Road planning area. Therefore, all new development projects and applications for rezonings will be reviewed for compliance with open space requirements outlined in the Zoning Ordinance and the Open Space policies and Open Space Proffer Guidelines in the General Plan.
2. The County will seek to preserve natural and open space resources in the Toll Road planning area through on-site and off-site density transfers in conjunction with the Open Space Proffer guidelines included in the General Plan. Natural and open space resources include the rural areas at the western and south-western edge of the planning area, the Phase III planning areas located in the Toll Road planning area, environmentally-sensitive areas like the diabase glade, Goose Creek, Sycolin Creek, and Broad Run.
3. The County will use cash contributions to secure permanent conservation easements in priority open space areas and unique habitats such as the diabase glade near Goose Creek.
4. Densities ranging from four (4) dwelling units per net acre up to and including 50 dwelling units per net acre may be considered by the County for voluntary

participation in an open space preservation program. In addition to meeting the proffer guidelines outlined for densities up to four (4) units to the acre, the County anticipates that 5% of all units will be associated with the open space preservation program defined by the General Plan.

5. The County encourages the clustering of development away from areas designated for open space preservation. See Map XX on page XX.
6. Density transfers are encouraged from those areas identified in the General Plan as well as several other areas of the County. Transfer areas include areas located outside of Urban Growth Areas which are zoned for rural residential use (CR-1, CR-2, etc.) and the part of the Dulles South planning area not planned to be served by utility extensions for the next eight years.
7. The County encourages the Toll Road Investors Partnership II to plant and maintain wildflowers and other appropriate ornamental landscaping in the median of the Dulles Greenway until the median is developed for another use.

PROPOSED AND EXISTING DEVELOPMENT

The County recognizes that new development adjacent to existing neighborhoods can be both good and bad. Thus, the County recommends that landowners discuss their development plans with their neighbors. The County desires to minimize any potential conflicts at an early stage in the development process. A key issue in the discussion should be the extent and nature of proposed transitional features between the existing neighborhood and the new development. The County recognizes that the small clusters of housing in the Waxpool, Ryan and Sycolin settlements are vulnerable to the effects of proposed development as are the new communities, like Ashburn Farm, which are still experiencing construction.

A significant inventory of rezoned, undeveloped land exists in the Toll Road planning area. With the adoption of the Toll Road Plan, the County may designate different land use policies than applied when the land was rezoned. New land use designations in the planning area will not change the landowner's ability to develop his property as zoned. New policies will apply when landowners choose to rezone or amend their land use concept, once the Plan is adopted. The County promotes the conformance of the proposed development with the Plan at the time of rezoning.

POLICIES

1. Existing uses in the Toll Road planning area will be accommodated by the Toll Road Plan until rezoning is proposed by the landowner. At the time of rezoning, the County will encourage the proposed land use to conform with Toll Road Plan land use policies.
2. The County will encourage sensitive physical and land use transitions between existing dwellings, farms, businesses, and communities and proposed new development. Design features may include but not be limited to extensive buffering,

separation of street entrances, redirection of traffic and complementary site design, view protection, stormwater management, and the protection of valuable cultural resources.

3. Prior to the submittal of development plans to the County, developers of new projects are encouraged to discuss their development proposals, especially transition features, with landowners in adjacent neighborhoods.
4. The County will discourage high density redevelopment in established, planned residential communities such as Ashburn Farm. These areas will remain designated for Suburban or Traditional residential development as indicated on the planned land use map.

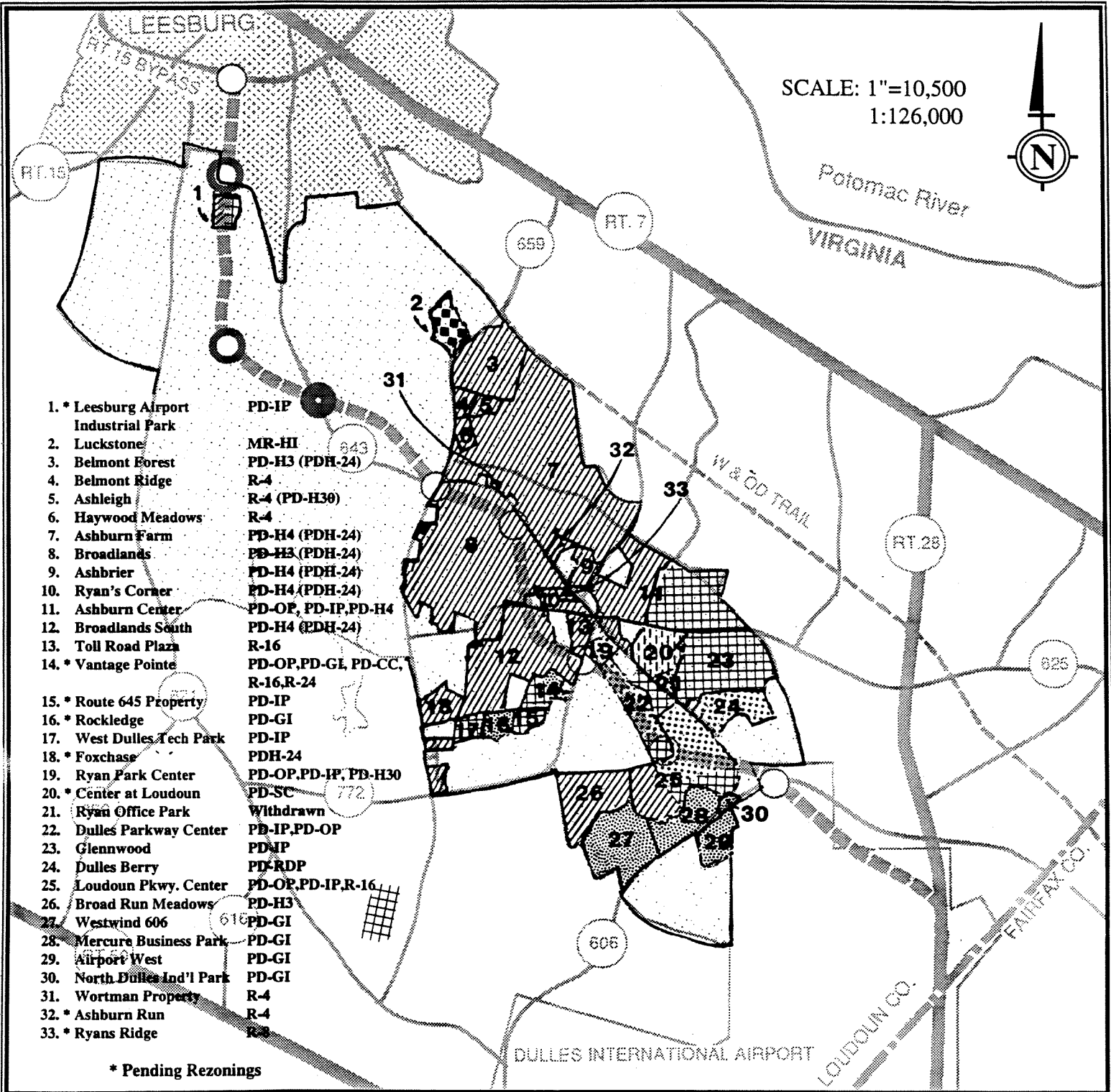
INTERIM LAND USES

Depending on the rate of construction and absorption of development, interim Land Uses may develop in the Toll Road planning area. Desirable interim uses generate low traffic and require low investment by the landowner. Proposals for Interim Land Uses will be evaluated for conformance with adopted policies, compatibility with surrounding land uses, and for transportation impacts. The existing agricultural uses, located predominantly along Route 621 as well as other places in the planning area, may continue, based on market conditions, as a de facto Interim Land Use until development is appropriate and feasible. The County encourages the continuation of farming as an Interim Land Use in the Toll Road planning area.

POLICIES

1. Interim land uses may be permitted in the Toll Road planning area if they:
 - a. Are compatible with existing or proposed development and are permitted in the underlying zoning district by special exception;
 - b. Are low trip-generation uses or are able to mitigate transportation impacts associated with the development through conditions of approval;
 - c. Do not preclude eventual development of planned land uses;
 - d. Are deemed clearly interim through a special exception condition to limit the length of time the use will be permitted;
 - e. Are not excluded by development covenants or pre-existing proffer agreements or special exception conditions; and
 - f. Are separated or screened or both by appropriate landscaped buffers or natural features.

Toll Road Plan



Zoned Land Use



Residential



Commercial



General Industrial



Industrial



Flex-Industrial



Office/Research and Development

2. The Zoning Ordinance should be amended to permit a wider variety of interim uses in the Toll Road planning area, if they are compatible with permitted, planned and proposed uses.
3. The County encourages the existing agricultural industry in the Toll Road planning area to continue as long as local farmers wish to continue farming but will not prohibit the conversion of farmland to residential communities and employment uses.

QUARRIES AND ANCILLARY LAND USES

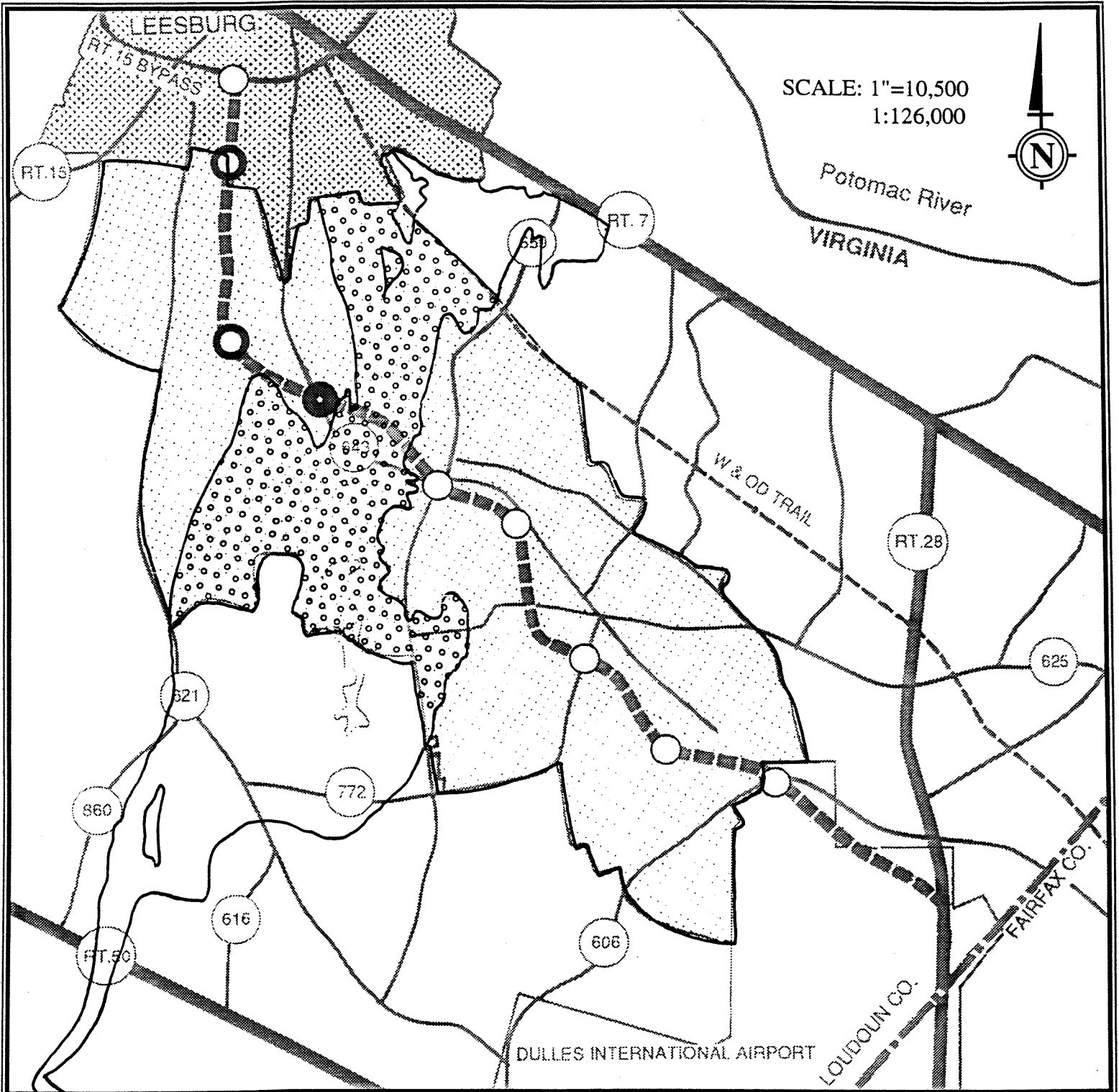
The Toll Road planning area contains a valuable natural and economic resource in the presence of diabase rock. This hard, brittle rock is used extensively in the construction of roads and buildings. A diabase quarry, owned by Luck Stone Corporation, presently operates in the planning area along Goose Creek. Naturally, quarries must be located where the diabase or extractive resource is located and surrounding land uses must be carefully planned around the quarry site. Although quarries are an economic benefit to the County and provide employment for residents, there are many negative impacts that require mitigation for the continued quality of life of surrounding residents. Quarry and ancillary industry operation generate noise and dust pollution, blast vibrations, significant large truck traffic, long hours of operation, visually unappealing character and the possibility of surface or groundwater contamination.

Because of the economic importance of the quarries, the County has encouraged the continued operation, and in some cases, expansion of quarry facilities due to the economic benefits. In the Toll Road planning area, an operating quarry and the existence of diabase resources, coupled with planned residential and commercial development in close proximity, require a policy approach to ensure their viability and to limit any negative effects on surrounding properties. The County provides for the operation of existing quarries and the development of new quarries in the planning area given certain criteria.

POLICIES

1. The County may permit additional diabase quarry sites in the Toll Road planning area, provided that the land is located in an industrial community, appropriate buffers are installed and maintained, surrounding land uses are compatible, and a road network that is designed to support industrial traffic is constructed. All new quarries are subject to the same locational and design criteria for evaluating quarry expansion.
2. Existing quarries and ancillary uses may be expanded if:
 - a. Access to the quarry site or ancillary use is provided from roads which are designed and maintained for industrial traffic; the access is located to separate the industrial traffic from residential neighborhoods and other non-industrial developments; and the quarry site shall be accessed directly from a major collector;

Toll Road Plan



Diabase Map

- b. A minimum 1000' setback from the pitwall is maintained from any existing or planned residential districts or land bays allowing residential uses. In addition, the County will develop appropriate setbacks for ancillary uses.
3. Residential builders and developers with projects in proximity to operating quarry sites will advise homebuyers of the quarry's existence.
4. Setbacks, buffers and other methods for reducing the noise, vibration, and visual impacts associated with quarries will be determined for those uses that may develop on properties adjacent to quarries.
5. The County will amend the Zoning Ordinance to provide standards for screening, clearing and grading, tree preservation, and the mitigation of environmental impacts associated with quarries and ancillary uses.

HISTORIC RESOURCES

Loudoun County is rich in historic sites and structures that represent the heritage of the County. The Toll Road planning area contains some significant structures that merit preservation. The County has identified the need to conserve historic sites and structures in the planning area. Within a developing corridor, this will be increasingly difficult over time. Rather than require preservation and restoration of sites in the Toll Road planning area, the County will encourage preservation, reuse or the continued use of historic sites and structures. Successful reuse of properties will be an amenity to a community. Surrounding development should not detract from these resources.

POLICIES

1. The County desires to preserve the historic and archeological sites and structures in the Toll Road planning area. The County encourages the preservation, adaptive reuse or continued traditional use of historic or archeological sites and structures located on properties subject to a development request. The adaptive reuse of historic structures should further the goals and policies of this plan and be agreeable to the County.
2. Development in the Toll Road planning area that is adjacent to historic and archeological sites and structures shall cause a minimum of disturbance to the historic context of the site. Negative impacts to a historic or archeological site, such as off-site traffic, parking or lighting, should be minimized or mitigated.